

REMARKS

This Amendment is fully responsive to the final Office Action dated May 6, 2011, issued in connection with the above-identified application. Claims 1 and 4-20 are pending in the present application. With this Amendment, claims 1, 5, 10 and 15-20 have been amended; and claim 4 has been cancelled without prejudice or disclaimer to the subject matter therein. No new matter has been introduced by the amendments made to the claims. Favorable reconsideration is respectfully requested.

In the Office Action, claims 1, 4, 8, 9, 13, 15, 16, 17, 19 and 20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomohiko (EP 1134933, hereafter “Tomohiko-EP”) in view of Sharony (U.S. Publication No. 2004/0057459, hereafter “Sharony”), Tomohiko (U.S. Publication No. 2001/0018714, hereafter “Tomohiko-US”) and Kobayashi (U.S. Publication No. 2004/0158872, hereafter “Kobayashi”).

Claim 4 has been cancelled thereby rendering the above rejection to that claim moot. Additionally, the Applicants have amended independent claims 1 and 15-17, 19 and 20 to more clearly distinguish the present invention from the cited prior art. For example, independent claim 1 (as amended) recites *inter alia* the following features:

“[a] communication system, comprising:

a first communication device; and

a second communication device,

wherein said first communication device includes:

a first content receiving unit operable to receive, via a first communication path, a Multicast frame which stores a content and has a Multicast IP address as a destination address at a Network Layer of the Multicast frame;

a conversion unit operable to convert the received Multicast frame into a Unicast frame addressed to said second communication device, the Unicast frame having only one Multicast IP address, which is the same as the Multicast IP address of the Multicast frame, as a destination address at a Network Layer of the Unicast frame, and the Unicast frame also having a MAC address of said second communication device as a destination address at a Data Link Layer of the Unicast frame” (Emphasis added).

The features emphasized above in independent claim 1 are similarly recited in independent claims 15-17, 19 and 20 (as amended). Additionally, the features emphasized above

in independent claim 1 (and similarly recited in independent claims 15-17, 19 and 20) are fully supported by the Applicants' disclosure (see e.g., ¶[0106]; and Figs. 15 and 16).

The present invention (as recited in independent claims 1, 15-17, 19 and 20) is distinguished from the cited prior art in that a conversion unit, a converter and a converting step convert an IP Multicast frame into a Unicast frame by a mechanism of the Data Link Layer. The converted Unicast frame is a Unicast frame having only one Multicast IP address as a destination address at a Network Layer of the Unicast frame and the Unicast frame also has a MAC address of a second communication device or a receiving device as a destination address at the Data Link Layer of the Unicast frame. Thus, with the present invention (as recited in independent claims 1, 15-17, 19 and 20), at the Network Layer, it is not necessary to convert the frames to Unicast frames.

In the Office Action, although the Examiner relies on the combination of Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi for disclosing or suggesting all the features on independent claims 1, 15-17, 19 and 20, the Examiner relies specifically on Tomohiko-EP for disclosing or suggesting all the features of the conversion unit, the converter and the converting step recited respectively in independent claims 1, 15-17, 19 and 20. In particular, the Examiner relies on ¶[0045]-¶[0049] of Tomohiko-EP.

The most relevant portions of Tomohiko-EP in ¶[0045]-¶[0049] are discussed below. Tomohiko-EP in ¶[0047] discloses a Unicast packet that is composed of a header section and a data section, wherein the header section includes an IP header of a destination address and a source address, and a UDP header of a destination port and a source port.

Tomohiko-EP in ¶[0048] discloses that a Unicast packet is transmitted to a packet transfer apparatus and the packet transfer apparatus determines whether the Unicast packet is a packet for a Multicast packet. The packet transfer apparatus searches a data transfer table and retrieves a group address, the destination port, the source address and the source port of the original Multicast packet. And, Tomohiko-EP in ¶[0049] discloses that the packet transfer apparatus transmits and reproduces the original Multicast packet.

Independent claims 1, 15-17, 19 and 20 are distinguished from Tomohiko-EP for at least the reasons noted below.

Independent claim 1 (as amended) now recites:

“a conversion unit operable to convert the received Multicast frame into a Unicast frame addressed to said second communication device, the Unicast frame having only one Multicast IP address, which is the same as the Multicast IP address of the Multicast frame, as a destination address at a Network Layer of the Unicast frame, and the Unicast frame also having a MAC address of said second communication device as a destination address at a Data Link Layer of the Unicast frame.”(Emphasis added).

With the present invention (as recited in independent claims 1, 15-17, 19 and 20), the Unicast frame has only one Multicast IP address as a destination address at a Network Layer of the Unicast frame and the Unicast frame also has a MAC address of a second communication device or a receiving device as a destination address at Data Link Layer of the Unicast frame.

On the other hand, Tomohiko-EP (i.e., ¶[0045]-¶[0049]) discloses that an address at the Network Layer regarding a converted Unicast frame is a Unicast IP address, not a Multicast IP address; and discloses that a Unicast frame includes two IP headers, wherein one IP header is used as an address at the Network Layer and the other IP header is a header of an original packet. In Tomohiko-EP (i.e., ¶[0045]-¶[0049]), the address at the Network Layer regarding the Unicast frame is clearly a Unicast IP address. Thus, Tomohiko-EP (i.e., ¶[0045]-¶[0049]) fails to disclose at least a Unicast frame that has only one Multicast IP address as a destination address at a Network Layer of the Unicast frame, as recited in independent claims 1, 15-17, 19 and 20.

Moreover, Tomohiko-EP discloses, with reference to Fig. 1, a packet having a Unicast address and a Multicast address as destination addresses at the Network layer, which is clearly different from having only one Multicast IP address as a destination address at a Network Layer of the Unicast frame, as recited in independent claims 1, 15-17, 19 and 20.

Tomohiko-EP also discloses, with reference to in Fig. 4, a packet having one Multicast IP address as a destination address at the Network layer; and discloses with reference to Fig. 5, a packet having only a Unicast IP address as a destination address at the Network layer.

Thus, Tomohiko-EP, with reference to Figs. 4 and 5, still fails to disclose or suggest a Unicast frame that has only one Multicast IP address as a destination address at a Network Layer of the Unicast frame, wherein the Unicast frame also includes a MAC address of a second communication device as a destination address at Data Link Layer of the Unicast frame, as recited in independent claims 1, 15-17, 19 and 20.

As noted above, Sharony, Tomohiko-US and Kobayashi are not relied on by the Examiner for disclosing or suggesting the features of the claimed conversion unit, converter and converting step recited respectively in independent claims 1, 15-17, 19 and 20. And, based on the deficiencies noted in Tomohiko-EP, no combination of Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi would result in, or otherwise render obvious, independent claims 1, 15-17, 19 and 20 (as amended). Likewise, no combination of Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi would result in, or otherwise render obvious, claims 8, 9 and 13 at least by virtue of their dependencies (directly or indirectly) from independent claim 1.

In the Office Action, claims 5 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi, and further in view of Zisapel (U.S. Publication No. 2003/0195984, hereafter “Zisapel”); claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomohiko, Sharony, Tomohiko-US, Kobayashi and Zisapel, and further in view of Alexander (U.S. Patent No. 7,411,901, hereafter “Alexander”); and claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomohiko-EP, Sharony, Tomohiko-US, Kobayashi, Zisapel and Alexander, and further in view of Lipp (U.S. Patent No. 6,751,219, hereafter “Lipp”).

Claims 5, 6, 7 and 10 depend (directly or indirectly) from independent claim 1. As noted above, Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi fail to disclose or suggest all the features recited in independent claim 1. Moreover, Zisapel, Alexander and Lipp fail to overcome the deficiencies noted above in Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi. Accordingly, no combination of Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi with Zisapel, Alexander or Lipp would result in, or otherwise render obvious, claims 5, 6 and 10 at least by virtue of their dependencies from independent claim 1.

In the Office Action, claims 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomohiko-EP, Sharony, Tomohiko-US, Kobayashi and Zisapel, and further in view of Lipp and Alexander; claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi, and further in view of Wesley (U.S. Patent No. 6,076,114); and claim 18 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi, and further in view of Wakai (U.S. Patent No. 5,973,722).

Claims 11, 12 and 14 depend (directly or indirectly) from independent claim 1. As noted above, Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi fail to disclose or suggest all the features recited in independent claim 1. Moreover, Zisapel, Alexander, Lipp and Wesley and fail to overcome the deficiencies noted above in Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi. Accordingly, no combination of Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi with Zisapel, Alexander or Lipp; or Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi with Wesley would result in, or otherwise render obvious, claims 11, 12 and 14 at least by virtue of their dependencies from independent claim 1.

With regard to independent claim 18, the claim has been amended similar to that of independent claim 1. Accordingly, independent 18 is distinguished from Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi for similar reasons noted above for independent claim 1. Moreover, Wakai fails to overcome the deficiencies noted above in Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi. Accordingly, no combination of Tomohiko-EP, Sharony, Tomohiko-US and Kobayashi with Wakai would result in, or otherwise render obvious, all the features of claim 18 (as amended).

In light of the above, the Applicants submit that all the pending claims are patentable over the prior art of record. The Applicants respectfully request that the Examiner withdraw the rejections presented in the outstanding Office Action, and pass the present application to issue. The Examiner is invited to contact the undersigned attorney by telephone to resolve any issues remaining in the application.

Respectfully submitted,

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